

PCT**NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)**

(PCT Rule 44bis.1(c))

To:

RAUSCHENBACH, Kurt
P.O. Box 387
Bedford, Massachusetts 01730
ETATS-UNIS D'AMERIQUEDate of mailing (*day/month/year*)

, 29 October 2009 (29.10.2009)

Applicant's or agent's file reference

ZON-015CPPC

IMPORTANT NOTICE

International application No.

PCT/US2008/004605

International filing date (*day/month/year*)

10 April 2008 (10.04.2008)

Priority date (*day/month/year*)

14 April 2007 (14.04.2007)

Applicant

ZOND, INC. et al

The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. +41 22 338 82 70

Authorized officer

Dorothee Mülhausen

e-mail: pt01.pct@wipo.int

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference ZON-015CPPC	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2008/004605	International filing date (<i>day/month/year</i>) 10 April 2008 (10.04.2008)	Priority date (<i>day/month/year</i>) 14 April 2007 (14.04.2007)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant ZOND, INC.		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 8 sheets, including this cover sheet. In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

<p style="text-align: center;">The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. +41 22 338 82 70</p>	<p>Date of issuance of this report 20 October 2009 (20.10.2009)</p> <p>Authorized officer Dorothee Mülhausen</p> <p>e-mail: pt01.pct@wipo.int</p>
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2008/004605

International filing date (day/month/year)
10.04.2008

Priority date (day/month/year)
14.04.2007

International Patent Classification (IPC) or both national classification and IPC
INV. H01J37/34

Applicant
ZOND, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the International application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220:

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Date of completion of
this opinion

See form
PCT/ISA/210

Authorized Officer

Hochstrasser, M

Telephone No. +31 70 340-3523



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2008/004605

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2008/004605

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	<u>1-35</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-35</u>
Industrial applicability (IA)	Yes: Claims	<u>1-35</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V.

1 Reference is made to the following document:

D1 : US 2005/103620 A1 (CHISTYAKOV ROMAN [US]) 19 May 2005 (2005-05-19).

2 INDEPENDENT CLAIMS 1, 24, and 30

2.1 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A sputtering apparatus (100-Figs.1, 2a) comprising:

- a) a chamber (101-Fig.2a) for containing a feed gas (paragraph [0040]);
- b) an anode (104a-c-Fig.2a) that is positioned inside the chamber;
- c) a cathode (102a-c-Fig.2a) assembly comprising target material (paragraph [0024]) that is positioned adjacent to the anode inside the chamber;
- d) a magnet (134a-c-Fig.2a) positioned adjacent to cathode assembly;
- e) a platen (implicit) that supports a substrate (141-Fig2a) positioned adjacent to the cathode assembly;
- f) a power supply (128-Fig2a) having an output that is electrically connected to the cathode assembly, the power supply generating a plurality of voltage pulse trains comprising at least a first and a second voltage pulse train, the first voltage pulse train generating a first discharge from the feed gas that causes sputtering of a first layer of target material having properties that are determined by at least one of a peak amplitude, a rise time, and a duration of pulses in the first voltage pulse train, the second voltage pulse train generating a second discharge from the feed gas that causes sputtering of a second layer of target material having properties that are determined by at least one of a peak amplitude, a rise time, and a duration of pulses in the second voltage pulse train.

In respect to paragraph f, it is noted that D1 discloses, according to the flowchart (Fig.4, paragraphs [0137]-[0138]), that during processing the power supply generates a first pulse train. Said pulse train creates a first discharge that causes sputtering of a first layer of target material determined by the parameters of the

first pulse train. If required, the parameters of the pulse train are modified and thereby the power supply creates a second pulse train. Said pulse train creates a second discharge that causes sputtering of a second layer of target material determined by the parameters of the second pulse train.

Hence, the subject-matter of claim 1 does not appear to be novel in the sense of Article 33(2) PCT.

2.2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 24 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A method for sputtering (Fig.4; paragraph [0137]), the method comprising:

- a) confining a feed gas in a plasma chamber (paragraph [0041]);
- b) applying a first voltage pulse train (354-Fig.4), to a cathode assembly (102a-c-Fig.2a) comprising target material (paragraph [0024]) thereby generating a plasma from the feed gas that sputters a first layer of target material (paragraph [0137]), a peak amplitude, a rise time, and a duration of pulses in the first voltage pulse train being selected to achieve desired properties (paragraph [0044]) of the first layer of target material; and
- c) applying a second voltage pulse train (364, 372-Fig.4) to a cathode assembly (102a-c-Fig.2a) comprising target material (paragraph [0024]) thereby generating a plasma from the feed gas that sputters a second layer of target material (paragraph [0137]-[0141]), a peak amplitude, a rise time, and a duration of pulses in the first voltage pulse train being selected to achieve desired properties (paragraph [0044]) of the second layer of target material.

Hence, the subject-matter of claim 24 does not appear to be novel in the sense of Article 33(2) PCT.

2.3 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 30 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document):

A method for generating a plasma (claim 39), the method comprising:

- a) confining a feed gas in a plasma chamber (claim 39);

- b) applying a first voltage pulse train (354-Fig.4, claim 39) to a first isolated cathode segment (claim 39) comprising a first target material (paragraph [0024]) thereby generating a plasma from the feed gas that sputters a layer of the first target material (claim 39), a peak amplitude, a rise time, and a duration of pulses in the first voltage pulse train being selected to achieve desired properties of the first layer of target material (claim 39); and
- c) applying a second voltage pulse train (claim 39) to a second isolated cathode segment (claim 39) comprising a second target material thereby generating a plasma from the feed gas that sputters a layer of the second target material (claim 39), a peak amplitude, a rise time, and a duration of pulses in the first voltage pulse train being selected to achieve desired properties of the first layer of target material (claim 39).

Hence, the subject-matter of claim 30 does not appear to be novel in the sense of Article 33(2) PCT.

3 DEPENDENT CLAIMS

- 3.1 Dependent claims 2-9, 13-23, 25-29, and 31-35 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (Article 33(2) PCT), as these features are already disclosed in document D1.
- 3.2 Dependent claims 10-12 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT), the reasons be as follows:

The skilled person would regard it a normal design option to use:

- a platen according to claims 10, and 11, to solve the problem of uniform coating
- a platen according to claim 12, to solve the problem of achieving a certain mechanical, electrical, and/or magnetic property of the deposited film.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2008/004605

Re Item VIII.

The application does not meet the requirements of Article 6 PCT, because claims 25 and 31 are not clear. Claims 25, and 31 are referring to steps c) and d) of claims 24, and 30, respectively, but step d) is not present in claims 24 and 30.